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SPECIFICATION FOR  
COTTON TAPES FOR WAGON SEALING

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# *Indian Standard*

## SPECIFICATION FOR COTTON TAPES FOR WAGON SEALING

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# *Indian Standard*

## SPECIFICATION FOR COTTON TAPES FOR WAGON SEALING

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 11 January 1982, after the draft finalized by the Narrow Fabrics, Webbing and Braids Sectional Committee had been approved by the Textile Division Council.

**0.2** This standard covers cotton tapes for wagon sealing used in the Indian Railways and is based on Specification No. G/Tex/C-88, issued by the Directorate General of Supplies and Disposals, Government of India.

**0.3** The Standards of Weights and Measures Act, 1976 stipulates use of the International System of Units in the country; in order to familiarize the industry with this system, the recommended SI units for use in the textile industry are given in Appendix A.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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### 1. SCOPE

**1.1** This standard covers ordinary and heavy duty woven cotton tapes used by railways for sealing of wagons.

### 2. REQUIREMENTS

**2.1 Count of Yarn** — The following count of warp and weft yarns may be used for the manufacture of ordinary and heavy duty types of cotton tapes for wagon sealing:

<i>Ordinary Type</i>	<i>Heavy Duty Type</i>
Warp — 30 Tex $\times$ 2 ( 20s/2 )	Warp — 60 Tex $\times$ 2 ( 10s/2 )
Weft — 60 Tex $\times$ 2 ( 10s/2 )	Weft — 60 Tex $\times$ 2 ( 10s/2 )

NOTE — The count of the yarn is given for the guidance of manufacturers only.

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\*Rules for rounding off numerical values ( revised ).

**2.2 Length of Roll** — The length of the roll in metres shall be not less than the length specified in the contract. Test shall be carried out in accordance with IS : 1954-1969\*.

**2.3** The cotton tapes for wagon sealing shall also comply with the requirements given in Table 1.

**TABLE 1 REQUIREMENTS FOR COTTON TAPES FOR WAGON SEALING**

SL No.	TYPE	WIDTH	TOLERANCE ON WIDTH	MASS, Max	ENDS IN FULL WIDTH, Min	PICKS/cm, Min	BREAKING STRENGTH, Min
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		mm	mm	g/m			kgf (N)
i)	Ordinary	5	+ 1 - 0	1.85	20	12	9 (88)
ii)	Heavy duty	5	+ 1 - 0	2.80	16	10	14 (137)
iii)	Ordinary	10	+ 1 - 1	2.80	30	12	16 (157)
iv)	Heavy duty	10	+ 1 - 1	4.20	22	10	18 (176)
v)	Ordinary	15	+ 2 - 1	3.70	40	12	20 (196)
vi)	Heavy duty	15	+ 2 - 1	6.80	36	10	29 (284)

Method of Test    IS : 1954-1969\*    IS : 1964-1970†    IS : 1963-1981‡    IS : 1969-1968§

\*Methods for determination of length and width of fabrics (*first revision*).

†Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

‡Methods for determination of threads per unit length in woven fabrics (*first revision*).

§Method for determination of breaking load and elongation at break of woven textile fabrics (*first revision*).

### 3. FINISH

**3.0** Grey, scoured or bleached as specified in the contract or order.

**3.1** The scouring loss for bleached, scoured and grey tapes shall not exceed 1, 2 and 5 percent, respectively when tested by mild method given in IS : 1383-1977†.

\*Methods for determination of length and width of fabrics (*first revision*).

†Methods for determination of scouring loss in grey and finished cotton textile materials (*first revision*).

**4. Packing**— Unless otherwise agreed to between the buyer and the seller, each roll shall be wrapped in 40  $\mu$ m thick polyethylene film (see IS : 2508-1977\*) or waterproof packing paper (see IS : 1398-1968†).

## 5. MARKING

**5.1** Each roll shall bear a label providing information about name/trade-mark of the manufacturer, length (m), width (mm), thickness (mm), and whether ordinary or heavy duty type.

**5.1.1** Each roll may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## 6. SAMPLING

**6.1** As follows unless otherwise specified:

<i>For Length, Width, Ends and Picks</i>			<i>Sub-sample Size of Mass, Scouring Loss, Breaking Strength</i>	
Lot Size (Rolls)	Sample Size (Rolls)	Permissible Number of Defective (Rolls)		
Up to 50	3	0	3	} 'Mean $\pm 0.6$ range' to be within the specified limits
51 to 150	5	0	3	
151 to 300	8	1	4	
301 to 500	13	1	5	
501 and above	20	2	7	

\*Specification for low density polyethylene films (*first revision*).

†Specification for packing paper, waterproof, bitumen-laminated (*first revision*).



## APPENDIX A

( Clause 0.3 )

## RECOMMENDED SI UNITS FOR TEXTILES

Sl No.	Characteristic	SI Unit		Application
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
1.	Length	Millimetre	mm	Fibres
		Millimetre, centimetre	mm, cm	Samples, test specimens ( as appropriate )
		Metre	m	Yarns, ropes, cordage, fabrics
2.	Width	Millimetre	mm	Narrow fabrics
		Centimetre	cm	Other fabrics
		Millimetre, centimetre	mm, cm	Samples, test specimens ( as appropriate )
		Centimetre, metre	cm, m	Carpets, druggets, <i>DURRIES</i> ( as appropriate )
3.	Thickness	Micrometre ( micron )	$\mu$ m	Delicate fabrics
		Millimetre	mm	Other fabrics, carpets, felts
4.	Linear density	Tex	tex	Yarns
		Millitex	mtex	Fibres
		Decitex	dtex	Filaments, filament yarns
		Kilotex	ktex	Slivers, ropes, cordage
5.	Diameter	Micrometre ( micron )	$\mu$ m	Fibres
		Millimetre	mm	Yarns, ropes, cordage

Sl No.	Characteristic	SI Unit		Application
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
6.	Circumference	Millimetre	mm	Ropes, cordage
7.	Threads in fabric:			Woven fabrics ( as appropriate )
	a) Lengthwise	Number per centimetre Number per decimetre	ends/cm ends/dm	
	b) Widthwise	Number per centimetre Number per decimetre	picks/cm picks/dm	
8.	Warp threads in loom	Number per centimetre	ends/cm	Reeds
9.	Stitches in knitted fabric:			Knitted fabrics ( as appropriate )
	a) Lengthwise	Courses per centimetre Courses per decimetre	courses/cm courses/dm	
	b) Widthwise	Wales per centimetre Wales per decimetre	wales/cm wales/dm	
10.	Stitch length	Millimetre	mm	Knitted fabrics, made-up itmes
11.	Mass per unit area	Grams per square metre	g/m <sup>2</sup>	Fabrics
12.	Mass per unit length	Grams per metre	g/m	Fabrics

SI No.	Characteristic	SI Unit		Application
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
13.	Twist	Turns per centimetre	turns/cm	Yarns, ropes, cordage (as appropriate)
		Turns per metre	turns/m	
14.	Test or gauge length	Millimetre, centimetre	mm, cm	Fibre, yarn and fabric specimens (as appropriate)
15.	Breaking load	Millinewton	mN	Fibres, delicate yarns (individual or skeins) Strong yarns (individual or skeins), ropes, cordage, fabrics
		Newton	N	
16.	Breaking length	Kilometre	km	Yarns
17.	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18.	Twist factor or twist multiplier	Turns per centimetre $\times$ square root of tex	turns/cm $\times \sqrt{\text{tex}}$	Yarns (as appropriate)
		Turns per metre $\times$ square root of tex	turns/m $\times \sqrt{\text{tex}}$	
19.	Bursting strength	Newton per square centimetre	N/cm <sup>2</sup>	Fabrics

<i>Sl No.</i>	<i>Characteristic</i>	<i>SI Unit</i>		<i>Application</i>
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
20.	Tear strength	Millinewton, newton	mN, N	F a b r i c s ( a s appropriate )
21.	Pile height	Millimetre	mm	Carpets
22.	Pile density	Mass of pile yarn in grams per s q u a r e metre per millimetre pile height	$\text{g/m}^2/\text{mm}$ pile height	Pile carpets
23.	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deforma- tion	Fibres,      yarns, strands